

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) A diaphragm for a loudspeaker drive unit, the diaphragm comprising a block of rigid plastic foam material having a first, convex, frusto-conical sound-radiating front face and a second, convex, frusto-conical rear face, each said frusto-conical face being formed by a respective frustum comprising a truncation plane and surrounding conical flank, wherein said block is stiffened by being bound about over said first and second faces by a multiplicity of turns of one or more elongate members of flexible material stiffened by a stiffening composition,

said flexible material being wound tangentially to said truncation planes so as to leave interstitial spaces between adjacent turns at the outer periphery of said conical flanks, in which spaces said block of rigid plastic foam material is left uncovered by said elongate members,

wherein said one or more elongate members are disposed in low tension so as to maintain said elongate members taut without pre-stressing the same,

wherein said one or more elongate members comprise tape wound carbon fibers and said stiffening composition comprises an epoxy resin .

2.-6. (Cancelled)

7. (Previously Presented) A diaphragm as claimed in claim 1, wherein the foam is a foam selected from the group consisting of polymethyl methacrylamide foam, and expanded polystyrene foam.

8. (Previously Presented) A diaphragm as claimed in claim 1, wherein the block is made of a rigid plastic foam material having a density selected from the group consisting of more than 20 grams per liter, and between 28 and 35 grams per liter.

9.-11. (Cancelled).

12. (Previously Presented) A diaphragm as claimed in claim 1, wherein the block contains one or more internal voids.

13.-14. (Cancelled).

15. (Previously Presented) A diaphragm as claimed in claim 1, wherein the or each elongate member is constituted by a member selected from the group consisting of a bundle of monofilaments, a bundle of plastic material monofilaments, a bundle of paraphenylene polybenzobisoxazole monofilaments, and a bundle of glass fiber monofilaments.

16.-20. (Cancelled).

21. (Previously Presented) A diaphragm as claimed in claim 38, wherein the body of material is bound about by a number of turns selected from the group between 100 and 500 turns, between 100 and 400 turns, between 200 and 400 turns, and approximately 300 turns.

22. (Cancelled).

23. (Previously Presented) A diaphragm as claimed in claim 1, wherein a protective rim is provided at the periphery of the block between the one or more elongate members and the material of the block.

24. (Previously Presented) A diaphragm as claimed in claim 33, wherein the one or more elongate members are adhesively secured directly to the material of said block.

25. (Previously Presented) A diaphragm as claimed in claim 38, wherein said first face of the block of the material and said one or more flexible members are arranged to act directly on the ambient air to radiate sound.

26. (Previously Presented) A diaphragm as claimed in claim 33, wherein the diaphragm is bonded to a central tubular member for carrying the voice coil of the loudspeaker drive unit.

27.-32. (Cancelled)

33. (Currently Amended) A diaphragm for a loudspeaker drive unit, the diaphragm comprising a block of rigid plastic foam material containing one or more internal voids, said block having a first, sound-radiating front face and a second, rear face, and a multiplicity of turns of one or more elongate members of flexible material stiffened by a stiffening composition bound about tangentially over the first and second faces so as to stiffen said block, spaces being left between said turns at the periphery of said block,

wherein said one or more elongate members are disposed in low tension so as to maintain said elongate members taut without pre-stressing the same.

34. (Previously Presented) A diaphragm as claimed in claim 33, wherein the foam is a foam selected from the group consisting of polymethyl methacrylamide foam, and expanded polystyrene foam.

35. (Previously Presented) A diaphragm as claimed in claim 33, wherein the stiffening composition comprises a composition selected from the group consisting of a resin composition, a styrene resin, an epoxy resin, a cellulose solvent based acrylic resin, a polyurethane resin, a cyanocrylate resin, and a thermosetting phenolic based resin.

36. (Previously Presented) A diaphragm as claimed in claim 33, wherein the block is made of a rigid plastic foam material having a density selected from the

group consisting of more than 20 grams per liter, between 20 and 35 grams per liter, and between 28 and 35 grams per liter.

37. (Previously Presented) A diaphragm as claimed in claim 33, wherein the or each elongate member is constituted by a member selected from the group consisting of a bundle of monofilaments, a bundle of plastics material monofilaments, a bundle of paraphenylene polybenzobisoxazole monofilaments, and a bundle of glass fiber monofilaments.

38. (Currently Amended) A diaphragm for a loudspeaker drive unit, the diaphragm comprising a block of rigid plastic foam material, said block having a first, sound-radiating convex front face, a central tubular member for carrying the voice coil of said loudspeaker drive unit, said block being bonded to said central tubular member, and a multiplicity of turns of one or more elongate members of flexible material stiffened by a stiffening composition wound tangentially to said central tubular member over the first and second faces so as to stiffen said central tubular member and said block,

wherein said block has a diameter of about 300 mm and said number of turns is between 100 and 500, and

wherein said one or more elongate members of flexible material comprise tape wound carbon fibers and said stiffening composition comprises an epoxy resin such that said central tubular member has a high longitudinal stiffness.

39. (Previously Presented) A diaphragm as claimed in claim 38, wherein the block contains one or more internal voids.

40. (Cancelled)

41. (Previously Presented) A diaphragm as claimed in claim 38, wherein a protective rim is provided at the periphery of the block between the one or more elongate members and the material of the block.

42. (Currently Amended) A diaphragm for a loudspeaker drive unit, the diaphragm comprising:

a central tubular member,

a circular block of rigid foam material of lozenge-shaped cross-section surrounding said tubular member and secured thereto, said block having a first sound-radiating front face and a second, rear face and having a density between 25 and 35 grams per liter,

a winding consisting of between 100 and 500 turns of a flexible monofilaments bundle of paraphenylene polybenzobisoxazole wound tangentially to said tubular member about said block to form a single layer at the periphery of said block leaving spaces between turns, and

an adhesive stiffening composition applied to said monofilament bundle and said adhesive stiffening composition securing said winding to said block of rigid foam material and securing said block of rigid foam material to said central tubular member.

43. (Previously Presented) A diaphragm as claimed in claim 42, wherein the mass of said block is about 16 times the mass of said winding.

44. (Previously Presented) A diaphragm as claimed in claim 42, wherein the winding has less than 400 turns.

45. (Previously Presented) A diaphragm as claimed in claim 38, wherein the winding has less than 400 turns.

46. (Newly Added) A diaphragm as claimed in claim 38, wherein said tape wound carbon fibers stiffened by said epoxy resin have a Young's modulus of approximately 300 GPa.